Department of Management Information Systems
Academic Year 2022 Assessment Report

All areas shaded in gray are to be completed by the department/program.
This document will be posted online and must be accessible electronically (including appendices).

MISSION STATEMENT

The mission of the Management Information Systems Department is to provide service courses in information systems, quantitative analysis, operations management, and business law and to equip MIS graduates with the knowledge and skills necessary to: (1) apply information systems and technology in an organization; (2) work effectively as an individual, a team member, and a leader; and (3) effectively communicate within the MIS team and the organization.

DEPARTMENT OBJECTIVES and ALIGNMENT WITH PRIORITIES FOR ACTION

After listing each departmental objective, indicate which of the five Priorities for Action the objective supports. In this section, you may also briefly describe any innovative or noteworthy programs/initiatives that support the Priorities for Action.

1. Present a current, relevant curriculum that meets the needs of our stakeholders and allows MIS majors to get great MIS careers (Student Centered, Drive Excellence & Innovation).
2. Inform the curriculum with assessment data, input from our Advisory Board, reference to a nationally recognized model curriculum, and data from surveys of students, alumni, and their employers (Drive Excellence and Innovation, Partner with Place).
3. Provide students with opportunities to apply management information systems concepts and theories in practical settings (Student Centered; Partner with Place).
4. Conduct research in management information systems, including innovative organizational uses of cutting-edge technology (Drive Excellence & Innovation).
5. Developed a certificate program in “Big Data,” partnering with industry leaders and other UM departments (Student Centered, Drive Excellence & Innovation, Partner with Place).
6. Developed certificate programs in Cybersecurity Management at the graduate and undergraduate level with industry partners as well as collaborate with Missoula College’s IT program on the Cybersecurity Professional certificate (Student Centered, Drive Excellence & Innovation, Partner with Place).
7. Proposed a Bachelor Degree in Cybersecurity in collaboration with Missoula College (Student Centered, Drive Excellence & Innovation, Partner with Place).

STUDENT LEARNING GOALS and MEASUREMENT TOOLS

Student Learning Goals	Technical Knowledge Rubric	Business Problem, MOV, & Problem Solving Rubrics	System Requirements, Design & Product Created Rubrics	Teamwork Rubric
1. MIS students will demonstrate command of the technical skills appropriate for the MIS major. Faculty evaluations out of 4 and Students Peer Evaluations out of 4.	**Fall 2021 & Spring 2022 Projects (Faculty 3.54) (Peers 3.77)**			
2. MIS graduates will analyze complex organizational problems. Faculty evaluations out of 4 and Students Peer Evaluations out of 4.		**Fall 2021 & Spring 2022 Projects (Faculty 3.47) (Peers 3.77)**		
3. MIS graduates will develop technological solutions that address organizational problems. Faculty evaluations out of 4 and Students Peer Evaluations out of 4.			**Fall 2021 & Spring 2022 Projects (Faculty 3.59) (Peers 3.59)**	
4. MIS students will work competently as part of a team or in a leadership role.				**Fall 2021 & Spring 2022 Projects (Faculty 3.88 out of 4)**
5.				
6.				
7.				

RESULTS and MODIFICATIONS

Learning Goal results	Modifications made to enhance learning
1. MIS students will demonstrate command of the technical skills appropriate for the MIS major. Fifteen projects, involving 72 students, were assessed with a project management rubric. The technical knowledge criterion was assessed for this goal. The projects averaged a 3.54 out of 4 for technical knowledge with the eight faculty evaluators. Student peer evaluations averaged a 3.77 out of 4.	The MIS Department Assessment from 2012, 2014, 2016, 2018, & 2021 had ratings of 3.05, 3.02, 3.25, 3.14, & 3.93 out of 4 for technical knowledge. There was a 9.73% decrease in the rating this cycle over 2021. This rating is above the 3.0 benchmark. There is no further action necessary for this learning goal.
2. MIS graduates will analyze complex organizational problems. Fifteen projects, involving 72 students, were assessed with a project management rubric. The business problem, measurable organizational value (MOV), and problem solving criteria were assessed for this goal. The eight faculty evaluators rated a 3.56 for business problem, 3.29 for MOV, & 3.56 for problem solving on a 4-point scale. The overall average was 3.47 for the faculty evaluators. The 72 students peer evaluators rated a 3.81 for business problem, 3.70 for MOV, & 3.81 for problem solving and the overall average was 3.77 on a 4-point.	The MIS Department Assessment from 2012, 2014, 2016, 2018, & 2021 had an overall average for the three areas of 2.84 , 2.76, 3.16, 2.87, & 3.66. The 2022 assessment showed a decrease to 3.47, which was a 5.19% decrease in the three areas of business problem, MOV, and problem solving. This is above the 3.0 benchmark. <u>Actions taken</u>: The last assessment cycle had professors teaching Systems Analysis & Design, Project Management, Operations Management, Data Analytics, and Information Infrastructures incorporate lessons on identifying business problems in the problem solving process. The rest of the MIS curriculum reinforced the importance of solving business problem when developing and implementing management information systems. These steps really helped improve the artifact to evaluate the analyze complex business problems goal. There is no further action necessary for this learning goal. Introduce measurable organization value (MOV) in 373 & other MIS classes. Organizations don't understand MOV and it shows up in what the students put forward. Covering the concept is more classes should help with student understanding. <u>Big Data Areas of Improvement</u>: The last assessment cycle noticed differences between the Big Data project compared to the other projects in the class. The students on Big Data teams don't have to be MIS majors, but many of them are. This assessment shows no significant differences in the ratings for the projects. The measures taken in the last assessment cycle took care of this problem. There are no further actions required. 3.25 MOV, 3.44 Design of System, 3.44 prototype.

Learning Goal results	Modifications made to enhance learning
	Student Peer Evaluations: Last assessment cycle implemented student peer evaluations of the final project presentations. These evaluations provided another data point in the assessment by pre-professionals in the MIS area. MIS requires students to complete an internship and the peer evaluations show the students took this process seriously. MIS will keep this process in the next assessment.
3. MIS graduates will develop technological solutions that address organizational problems. Fifteen projects, involving 72 students, were assessed with a project management rubric. The system requirements, system design, and final system or prototype were assessed for this goal. The eight faculty evaluators rated a 3.55 for system requirements, 3.57 for system design, and 3.65 for the final system or prototype on a 4-point scale. The overall average was 3.59 by the faculty evaluators. The 72 student peer evaluators rated a 3.82 for system requirements, 3.76 for system design, and 3.76 for the final system or prototype on a 4-point scale with an overall average of 3.78.	The MIS Department Assessment from 2012, 2014, 2016, 2018, & 2021 had overall ratings of 2.74, 2.57, 2.96, 3.03, & 3.76. The 2022 assessment showed a decrease in the overall average to 3.59, which represents a decrease of 4.42% for this goal. This is above the 3.0 benchmark. Areas of Improvement: Professors in MIS will continue to reinforce the changing nature of technology and the developing of new methods. All courses will try to reinforce the importance of the systems analysis and design skill to developing solutions to business problems and that the technology used is constantly evolving. Big Data Areas of Improvement: This assessment shows no significant differences in the ratings for the big data projects. The measures taken took care of this problem. There are no further actions required.
4. MIS students will work competently as part of a team or in a leadership role. Fifteen projects, involving 72 students, were assessed with a project management rubric. The eight faculty evaluators rated a 3.88 for teamwork on a 4-point scale. The 72 student peer evaluators did not evaluate teamwork.	The MIS Department Assessment from 2012, 2014, 2016, 2018, & 2021 had a ratings of 2.90, 3.17, 3.34, 3.27, & 3.81 out of 4 for teamwork. The 2022 assessment had a rating of 3.88, which is a 1.58% increase over the last assessment. The benchmark the MIS Department set for all goals was a rating of 3.0. This rating is above the benchmark. There is no further action necessary for this learning goal.

Curriculum Map

The MIS Department updated the curriculum map based on the rubric used to assess the project books from students in the Project Management capstone course. Another curriculum map was updated based on the MIS Department learning goals. Both maps are in the Appendix. The curriculum maps show that the concepts and learning goals are introduced and reinforced in many of the courses in the curriculum. The mastered level was achieved for the goals analyze business problems, develop technical solutions to the problems, and teamwork. MIS faculty felt that since the MIS field is rapidly changing (software changes about every 18 months), that it is impossible to teach any of the skills at the mastery level. It is important that students have skills to analyze difficult business problems and select the best analytical tools, methods, and technology at that point in time to solve the problems.

FUTURE PLANS FOR CONTINUED ASSESSMENT

MIS faculty will continue to assess projects in the Project Management senior capstone course. As technology evolves, the projects to solve business problems are more complicated and it is difficult to normalize those projects against previous assessments. The MIS field has higher expectations on projects given the level of technical solutions that are available and the skills that students acquire. The next MIS Department assessment cycle will continue to have students provide peer ratings on all project presentations using the Project Management rubric. The capstone professor will make several top books available for students to review, so they have examples of excellent work in the MIS field. The final report created by students in Project Management will be designed to have direct artifacts to measure performance on the MIS Department's Learning goals. Faculty reviewers and outside reviewers will watch recordings of the student presentations as well as review the final reports to rate the learning goals and compare those ratings to the student peer ratings.

APPENDICIES

1. Project Management Rubric
2. MIS Projects Assessment for 2022 on 15 projects involving 72 students
3. Student peer evaluations of 15 projects involving 72 students
4. Curriculum Maps

Appendix 1: Project Management Rubric

Criteria	**Beginning** (1) Limited Proficiency (D)	**Developing** (2) Some Proficiency (C)	**Experienced** (3) Proficiency (B)	**Professional** (4) High Proficiency (A)
Identify the Business Problem	Basic recognition of business problem with minimal detail & understanding.	Recognizes the business problem with some comprehension of the level of complexity.	Recognizes the business problem with adequate understanding of the level of complexity.	Clear recognition of the business problem and fully understands its complexity & its strategic implications for the organization.
Measurable Organizational Value (MOV)	MOV is poorly stated and not measurable.	MOV is stated but not measurable.	MOV is adequately defined and measurable as well as shows a link to solving the business problem.	MOV is well defined, measurable, and shows a clear link to solving the business problem and the strategy of the organization.
Research & Information Gathering	Little research was conducted or information gathered to solve the business problem.	Some research was conducted and information gathered to solve the business problem.	Adequate research was conducted and information gathered to solve the business problem.	Research conducted and information gathered was relevant to completely solve the business problem.
Analysis of Information System Requirements	Little analysis conducted on the information system and its requirements.	Some analysis conducted on the information system and its requirements.	Adequate analysis was conducted on the information system and its requirements.	Complete analysis conducted on the information system and its requirements.
Design of Information System	The system design does a poor job of capturing the requirements and few documents were created (flow charts, data flow diagrams, ER diagrams, site maps, website layout, etc.).	The system design somewhat captures the requirements and some diagrams were created (flow charts, data flow diagrams, ER diagrams, site maps, website layout, etc.).	The system design adequately captures the requirements and an adequate amount of diagrams were created (flow charts, data flow diagrams, ER diagrams, site maps, website layout, etc.).	The system design completely captures the requirements and shows creativity in the design of the information system. All appropriate diagrams were created (flow charts, data flow

				diagrams, ER diagrams, site maps, website layout, etc.).
Project Management Documents	The project documents (plan, schedule, budget, communication plan, risk management plan, etc.) do a poor job of describing the steps to design, create, test, and implement the information system.	The project documents (plan, schedule, budget, communication plan, risk management plan, etc.) somewhat show the steps to design, create, test, and implement the information system.	The project documents (plan, schedule, budget, communication plan, risk management plan, etc.) adequately show the steps to design, create, test, and implement the information system.	The project documents (plan, schedule, budget, communication plan, risk management plan, etc.) clearly and completely show the steps to design, create, test, and implement the information system.
Final Information System or Prototype	The information system created poorly captures the system design, but won't solve the business problem.	The information system created captures some of the system design, but does little to solve the business problem.	The information system created adequately captures the system design and should solve the business problem.	The information system created clearly captures the system design and will solve the business problem.
Problem Solving	• Team fails to select and implement the relevant concepts, procedures, and strategies needed to create the information system. • Team fails to consider most constraints and stakeholders of the information system. • The information system created does not solve the business problem.	• Team selects and implements some of the relevant concepts, procedures, and strategies needed to create the information system. • Team considers some constraints and stakeholders of the information system. • The information system created solves some of the business problem.	• Team adequately selects and implements relevant concepts, procedures, and strategies needed to create the information system. • Team considers most constraints and stakeholders of the information system. • The information system created adequately solves the business problem.	• Team completely selects and implements relevant concepts, procedures, and strategies needed to create the information system. • Team completely considers all constraints and stakeholders of the information system. • The information system created completely solves the business problem.

Technical Knowledge	Team did a poor job of learning the technology required to create the information system.	Team learned some of the technology required to create the information system.	Team adequately learned the technology required to create the information system.	Team clearly learned and mastered the technology and deployed it appropriately to create the information system.
Teamwork	• The team did not work together to achieve objectives for the project. • Some members worked independently, without regard to project objectives or priorities. • Team showed a lack of respect for each other.	• The team worked somewhat together to achieve objectives for the project. • Some members contributed in a valuable way to the project. • Team was somewhat respectful of each other.	• The team worked adequately together to achieve objectives for the project. • Most members contributed in a valuable way to the project. • Team was mostly respectful of each other.	• The team worked well together to achieve objectives for the project. • Each member contributed in a valuable way to the project. • Team exhibited a high level of mutual respect and collaboration.

Appendix 2: IS Projects Assessment for 2022 on 15 projects involving 72 students

MIS Projects Assessment
Fall 2021 to Spring 2022

2012 Average Scores	**3.09**	**2.69**	**2.59**	**2.48**	**2.69**	**3.09**	**3.05**	**2.73**	**3.05**	**2.90**
2014 Average Scores	**2.80**	**2.53**	**2.42**	**2.23**	**2.58**	**3.05**	**2.89**	**2.94**	**3.02**	**3.17**
2016 Average Scores	**3.15**	**3.15**	**3.03**	**2.79**	**2.95**	**3.25**	**3.12**	**2.99**	**3.22**	**3.34**
2018 Average Scores	**2.90**	**2.83**	**2.64**	**2.98**	**3.20**	**3.06**	**3.21**	**3.07**	**3.03**	**3.26**
2021 Average Scores	**3.60**	**3.59**	**3.85**	**3.59**	**3.79**	**3.91**	**3.90**	**3.79**	**3.93**	**3.81**
2021 Average Student Peer Scores	**3.80**	**3.67**	**3.73**	**3.69**	**3.66**	**3.75**	**3.64**	**3.69**	**3.67**	
2022 Big Data Projects	3.63	3.25	3.56	3.50	3.44	3.88	3.44	3.69	3.56	3.94
2022 Student Peer Scores	3.81	3.70	3.80	3.82	3.76	3.78	3.76	3.81	3.77	
2022 Average Scores All Projects	**3.56**	**3.29**	**3.43**	**3.55**	**3.57**	**3.68**	**3.65**	**3.56**	**3.54**	**3.88**
Percentage Increase or Decrease	-1.19%	-8.31%	-11.04%	-1.14%	-5.64%	-5.91%	-6.25%	-6.03%	-9.73%	1.58%

	Rubric Criteria										
Projects	**Business Problem**	**MOV**	**Research & Info. Gathering**	**System Requirements**	**Design of System**	**Project Mgmt Docs**	**Final System or Prototype**	**Problem Solving**	**Technical Knowledge**	**Teamwork**	
RMACC Website (F2021)											**Calibration Trial**
Akello	4	4	3.5	4	3.5		3.5	3.5	4	4	
Clouse	3.5	4	3.5	4	3.5	3.5	4	4	3.5	3.5	
Firth	3	4	4	3	3		4	3	3	4	
Harrington	3	3	3	3	3	3	3	3	3	3.5	
Looney	4	3	4	4	3		3	4	2.5	4	
Triche	2.5	3	4	3	3.5		3.5	3	3.5	3.5	
Haddouch	4	3	3	2	3		3	3	2.5	4	
Valgenti	3	3	3	3	3		3	3	3	4	

Average Rating	3.375	3.375	3.5	3.25	3.1875	3.25	3.375	3.3125	3.125	3.8125
Calibration Consensus Rating	3.5	3.5	3.5	3	3	3.5	3.5	3.5	3	4
Humane Society Website (F2021)										
Firth	4	3	4	4	4	4	4	4	4	4
Akello	4	3	4	4	4	4	4	4	4	4
Milky Whey Website (F2021)										
Clouse	3.5	3	3.5	3	3	3.25	3.75	3	3.25	4
Harrington	3	3	2.5	3	3	3.25	3.5	3	3	3.5
Valgenti	3	3	2.5	3	3	3.5	4	3.25	3	4
Cybersecuity Awareness Hub (F2021)										
Firth	3	3.5	3	3	3	3	3.5	3.5	3.5	4
Akello	3	3.5	3	3	3	3	3.5	3.5	3.5	4
EmpowerMT Website (F2021)										
Clouse	3.25	4	3.75	3.5	3.25	3.5	4	3.25	3	4
Harrington	3.5	3.75	3.5	3.25	3.5	3.25	3.5	3	3	3.75
Valgenti	3.5	4	3	3.5	3	3.75	3.5	3	3	4
Morton Cyber Data Eng (Big Data F2021)										
Triche	3.5	3.5	4	3.5	3.5	4	3	3.5	3.5	4
Looney	4	3.5	3	3	3	4	3	4	3	4
UM Student Success Big Data (F2021)										
Triche	3	3.5	3.5	3.5	4	3.5	4	3.5	3	4
Looney	3.5	3	3.5	4	3.5	4	3.5	3.5	4	4
Tell Us Something Website (S2022)										
Clouse	3.5	3.25	3.5	4	4	3.5	4	3.5	4	3
Harrington	3.5	3	3.5	3.5	3.75	3.5	3.5	3.5	3.5	3
Valgenti	2.75	3	3	3.5	3.5	3.75	3.75	3.75	3.5	3.5
CapSource Website (S2022)										
Clouse	4	3.5	3.75	4	4	3.5	4	4	4	4
Harrington	4	3.5	3.5	4	4	3.5	4	4	4	4
Valgenti	4	4	3.5	4	4	3.5	4	4	4	4
Skidom Website (S2022)										
Clouse	3	3.5	3.5	4	4	3.5	3.5	3.5	3.75	4
Harrington	3	3	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5

Valgenti	3	3	3	4	3.5	3.75	3.75	3.75	3.5	4
UM Marketing Asana (S2022)										
Firth	4	2.5	3	3.5	4	4	3.5	3.5	3.5	4
Akello	4	2.5	3	3.5	4	4	3.5	3.5	3.5	4
LumenAd Ticket Reporting (S2022)										
Firth	4	3	3.5	3.5	4	4	3.5	3	3.5	4
Akello	4	3	3.5	3.5	4	4	3.5	3	3.5	4
Copper King Website (S2022)										
Firth	4	4	4	4	4	4	4	4	4	4
Akello	4	4	4	4	4	4	4	4	4	4
BTDBlood Analytics (Big Data S2022)										
Triche	3.5	3	4	3.5	4	4	3.5	4	3.5	3.5
Looney	3.5	3	3.5	4	3	4	4	3.5	4	4
Morton Payment Analytics (Big Data S2022)										
Triche	4	3.5	3.5	3.5	3.5	4	3.5	3.5	3.5	4
Looney	4	3	3.5	3	3	3.5	3	4	4	4

	Faculty	Student	2021	Growth
Problem, MOV, Prob. Solving	3.47	3.77	3.66	-5.19%
Requirements, design, prototype	3.59	3.78	3.76	-4.42%

Appendix 3: IS Projects Assessment for 2022 on 15 projects involving 72 students – Student Peer Ratings

MIS Projects Assessment
Fall 2021 to Spring 2022

Average Scores	**3.81**	**3.70**	**3.80**	**3.82**	**3.76**	**3.78**	**3.76**	**3.81**	**3.77**	

	Rubric Criteria									
Projects	**Business Problem**	**MOV**	**Research & Info. Gathering**	**System Requirements**	**Design of System**	**Project Mgmt Docs**	**Final System or Prototype**	**Problem Solving**	**Technical Knowledge**	**Teamwork**
RMACC Website (F2021)	3.76	3.55	3.86	3.83	3.76	3.79	3.69	3.75	3.69	
N	29	29	29	29	29	29	29	28	29	
Humane Society Website (F2021)	3.93	3.93	3.93	3.93	3.87	3.93	3.80	4.00	4.00	
N	15	15	15	15	15	15	15	15	15	
Milky Whey Website (F2021)	3.81	3.69	3.73	3.77	3.88	3.85	3.85	3.81	3.69	
N	26	26	26	26	26	26	26	26	26	
Cybersecuity Awareness Hub (F2021)	3.65	3.42	3.73	3.62	3.77	3.73	3.65	3.73	3.73	
N	26	26	26	26	26	26	26	26	26	
EmpowerMT Website (F2021)	3.74	3.74	3.87	3.87	3.78	3.83	3.78	3.78	3.70	
N	23	23	23	23	23	23	23	23	23	
Morton Cyber Data Eng (Big Data F2021)	3.81	3.65	3.77	3.65	3.72	3.65	3.80	3.85	3.73	
N	26	26	26	26	25	26	25	26	26	
UM Student Success Big Data (F2021)	3.84	3.64	3.80	3.80	3.56	3.56	3.76	3.80	3.80	

N	25	25	25	25	25	25	25	25	25	
Tell Us Something Website (S2022)	3.84	3.66	3.59	3.78	3.75	3.66	3.72	3.69	3.78	
N	32	32	32	32	32	32	32	32	32	
CapSource Website (S2022)	3.87	3.77	3.81	3.94	3.97	3.65	3.83	3.90	3.81	
	31	31	31	31	31	31	30	30	31	
Skidom Website (S2022)	3.70	3.64	3.76	3.84	3.79	3.85	3.76	3.76	3.76	
	33	33	33	32	33	33	33	33	33	
UM Marketing Asana (S2022)	3.72	3.78	3.59	3.72	3.50	3.78	3.63	3.66	3.72	
	32	32	32	32	32	32	32	32	32	
LumenAd Ticket Reporting (S2022)	3.94	3.81	3.97	3.97	3.77	3.83	3.84	3.87	3.94	
	31	31	31	31	31	29	31	31	31	
Copper King Website (S2022)	3.89	3.86	3.89	3.85	3.57	3.79	3.68	3.81	3.64	
	28	28	28	27	28	28	28	27	28	
BTDBlood Analytics (Big Data S2022)	3.84	3.68	3.94	3.87	3.90	3.81	3.77	3.83	3.81	
	31	31	31	31	31	31	31	30	31	
Morton Payment Analytics (Big Data S2022)	3.79	3.69	3.82	3.90	3.86	3.96	3.90	3.86	3.76	
	28	29	28	29	29	28	29	29	29	

Appendix 4: MIS Curriculum Maps

MIS Curriculum Map to Evaluation Rubric 2022

Rubric/Courses	Business Problem	MOV	Research & Info. Gathering	System Requirements	Design of System	Project Mgmt Docs	Final System or Prototype	Problem Solving	Technical Knowledge	Teamwork
BMIS270	I		I	I	I	I	I	I	I	
BGEN222	I							I	I	
BMIS326	I							I	I	D
BMIS365	I				I		I	I	I	
BMIS370				D	D		D		I	D
BMIS372	D		I	I	I	I	I	D	I	D
BMIS373	I	I	I	I	I	I	I	D	I/D	D
BMIS476	M/A	D/A	M/A	D/A	D/A	M/A	D/A	D/A	D/A	M/A
BMIS465	D		D	D	D		D	D	I/D	D
BMIS471	D			I	I			D	I	
BMIS472	D		M	D	D			D	D	M
BMIS478	D		D	D	D		D	D	D	D
BMIS479	D		D					D		D

Note: I=Introduced, D=Developed/Reinforced, M=Mastered, & A=Assessment Collected

MIS Curriculum Map to Goals Rubric 2022

Goals/Courses	Technical Skills for MIS Major	Analyze Complex Organizatoinal Problems	Develop Technical Solutions for Organizatoinal Problems	Work as part of a Team or in a Leadership Role
BMIS270	I	I	I	
BGEN222	I	I	I	
BMIS326	I	I	I	I
BMIS365	I		I	
BMIS370	I	D	D	D
BMIS372	D	D	D	D
BMIS373	D	I	I	D
BMIS476	D/A	M/A	M/A	M/A
BMIS465	D	D	D	D
BMIS471	I	D	I	
BMIS472	D	D	D	D
BMIS478	D	D	D	D
BMIS479		D		D

Note: I=Introduced, D=Developed/Reinforced, M=Mastered, & A=Assessment Collected